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BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.

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Office of the Director

November 24, 1997

Mr. K. Dean Helms
Executive Manager
U.S. Department of Energy
Brookhaven Group
Upton, New York 11973

Dear Mr. Helms:

SUBJECT: LESSONS LEARNED - HANFORD TANK EXPLOSION ACCIDENT INVESTIGATION

REFERENCE: Tara O'Toole Letter dated October 10, 1997

The above referenced letter asked that each DOE facility (1) review the major process issues of accident investigation identified in the Lessons Learned Report, (2) review accident investigation processes used by the facility, and (3) identify and implement appropriate corrective actions to preclude a recurrence of the process issues which arose out of the Hanford Investigation. This letter is in response to the three above-mentioned areas of concern.

1. Review of the major process issues of accident investigation

The three major process issues are listed below along with the results of our review.

A. There was confusion in determining the accident category.
Brookhaven National Laboratory has drafted an Environmental, Safety and Health (ES&H) Standard under the title of Occupational Injury/Illness Investigation. This standard is very specific regarding how an accident is classified and the process to be taken once it is determined that an investigation is necessary. Appendix B of that standard contains matrices which specify when a Type A, Type B, or Type C investigation is to be conducted. The matrices contain information on the types of events which require each of the various types of investigation, who will be notified, which office is responsible for conducting the investigation, and the management review required.

B. Personnel selected for the Accident Investigation Board were not all DOE personnel who have the training and experience specified in DOE Order 225.1

Within BNL's Safety and Environmental Protection (S&EP) Division is the Safety Engineering Group. This group has one individual who has served as an advisor to DOE Type A and Type B accident investigations. Another individual has taken the AI training sponsored by the Office of the Assistant Secretary for Oversight in 1996, both for board members and points of contact. In addition, the division has approximately eight individuals who are MORT Accident Investigation trained. BNL has undertaken a project to train its supervisory personnel in Type C accident investigation. To date, a total of 161 people has been trained.

The function of the BNL accident investigators is to conduct a preliminary evaluation of the situation, make a determination of the seriousness of the event, assist in the collection and preservation of evidence, provide support for the DOE team, and preserve the scene until DOE personnel arrive. BNL also supplies a professional photographer for the above.

C. Accident investigation activities initially were not fully coordinated with actions of the emergency response investigation

Upon initial notification of any emergency, both the Fire/Rescue (F/R) Group and the Police Group at BNL will respond. BNL utilizes the Incident Command System for emergency response. The Incident Commander (IC) will be either the ranking F/R responder, i.e., Chief, Deputy Chief, or Captain, or the ranking Police Group responder. The F/R Group will treat any injuries within their capabilities and call for outside medical assistance as necessary. The Police Group will also respond to the scene and determine if it is a possible crime scene. They will secure the scene, limit access, maintain a log-in/log-out of responders, and maintain integrity of the scene until it is released. If the event involves an accident/incident involving violence, motor vehicle accidents, on site fatalities and severe multiple injuries, the Police Group will assume the role of IC until released to another authority.

The Safety Engineering Group carries an emergency pager and can be reached at any time. If summoned, a member of this group will respond to the scene of the incident, assist with appropriate immediate corrective actions, assist with the investigation, and take control of the scene once it is ready for release by the Fire Rescue Group or the Police Group. An AI readiness response kit is maintained by the BNL Safety Engineering Group.

2. Review accident investigation process used

BNL is in the process of revising it ES&H Standard for Occupational Injury and Accident Investigation. This standard addresses those issues raised by the above referenced letter.

3. Identify and implement appropriate corrective actions to preclude a recurrence of the process issues which arose out of the Hanford Investigation
BNL has reviewed the processes it uses for emergency response and accident investigation and has determined that its response is appropriate and no further corrective actions are required.

Should you have any questions, please contact Steve Hoey at extension 7936 or Ken Krasner at extension 2563.

Sincerely,

William E. Gunther
Interim Associate Director

WEG/KK/ls

cc: W. R. Casey
S. Hoey
K. Krasner
F. Marotta
O. White

EP7020.97

K Kramer

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Office of the Director

November 10, 1997

Mr. K. Dean Helms
Executive Manager
U. S. Department of Energy
Brookhaven Group
Upton, NY 11973

Subject: BNL Chemical Vulnerability and Emergency Response

Reference: 1. DOE Response to the May 14, 1997 Explosion at Hanford's Plutonium Facility, dated August 4, 1997

2. Memorandum, F. Peña to Secretarial Officers Heads of Field Elements, dated August 27, 1997, Subject: Lessons Learned from the Emergency Response to the May 14, 1997 Explosion at Hanford's Plutonium Reclamation Facility

3. Memorandum, F. Peña to Heads of Headquarters Elements Operations and Field Officers Managers Power Marketing Administrators, dated August 27, 1997, Subject: Timely Notification of Emergencies and Significant Events

Dear Mr. Helms:

Attached is the BNL response to the referenced memoranda. This response was prepared by members of our staff to address the Secretary of Energy's concerns regarding vulnerabilities that occurred in the Hanford explosion as they relate specifically to Brookhaven National Laboratory.

Most of the emergency response actions that DOE is requiring are already part of Brookhaven's emergency response posture [as noted in BNL's 1997 *Emergency Readiness Assurance Plan* (attached)]. Many of the chemical vulnerabilities issues identified in the reference memos have been addressed in recent activities at Brookhaven or have been captured in our Management System Improvement Plan. It is our conclusion that there is only one chemical (chlorine) or radiological hazards present at Brookhaven in quantities that are capable of creating a situation that would result in a general emergency condition. This has been established in the 1996 Brookhaven National Laboratory Hazard Assessment, on which our emergency response program is based.

A presentation in 1996 was made to local regulators on the chlorine hazard and they were satisfied with BNL's response. Since we have no materials on-site other than chlorine that can cause a General Emergency, additional comments from state and local regulators were not solicited. However, we have been working closely with the local fire departments so they are

aware of the hazards on-site and our capabilities to notify them of an ongoing incident. In addition, the Fire Rescue Group communicates routinely with other emergency responders as part of our mutual aid agreement.

If you have any questions, please contact Ken Krasner at ext. 2563.

Sincerely,

William E. Gunther
Interim Associate Director

WEG/OW:av
Attachments

DETAILED NARRATIVE OF ACTIONS TAKEN
IN RESPONSE

EMERGENCY RESPONSE

FACILITY: Brookhaven National Laboratory

RESPONSIBLE INDIVIDUAL: DOE

CONTRACTOR

ACTION ID. NO. J98T0002 ACTION DUE: 9/27/97

ACTION ITEM: Review criteria (e.g., emergency action levels) used to determine emergency and significant event recognition and categorize to ensure that all reasonable event indicators are adequately covered by procedures and that procedures reflect an expeditious process.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 9/97 DAYS OVERDUE:

ACTION DESCRIPTION: The BNL Emergency Plan was revised and issued in June, 1997 following the completion of the BNL Hazards Assessment. EALs were developed based on the results of the Hazards Assessment. Procedures were revised and issued to include the results of the Hazards Assessment, the emergency plan, and other requirements of DOE Order 151.1, i.e. incorporation of the Operational Emergency category which is not further classified (Base Operational Emergency).

A review of the EALs and procedures indicated that they are adequate to categorize and classify events at BNL.

SUMMARY OF RESULTS: The review which was conducted indicated that no further action was required.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T0003 ACTION DUE: 9/27/97

ACTION ITEM:	Review training procedures for personnel responsible for event categorization, notification, or reporting, to ensure that these personnel fully understand the Departmental emphasis on timely event classification and notification.
STATUS OF ACTION:	Complete
DATE OF COMPLETION:	9/22-24/97 DAYS OVERDUE:
ACTION DESCRIPTION:	The training program for emergency management personnel was revised concurrent with the revision to the emergency plan. Study guides were developed to emphasize the changes required by DOE O 151.1. A review of the training program indicated that timely event notifications were included as part of the lesson plan.
SUMMARY OF RESULTS:	A review was conducted and indicated that no further action is required.
CORRECTIVE ACTION:	None
COMMENTS:	None

ACTION ID. NO. J98T0004 ACTION DUE: 9/27/97

ACTION ITEM: Conduct "refresher" training and drills for personnel responsible for event categorization, notification, or reporting, to ensure that these personnel fully understand the Departmental emphasis on timely event classification and notification.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 8/26, 9/1, 9/12, 10/24 DAYS OVERDUE:

ACTION DESCRIPTION: Following the revision to the emergency management training program (J98T0003), a series of Notification, Mobilization and Activation drills were conducted. These drills concentrated on the procedures to fully notify and mobilize emergency response forces, and notify off site agencies of an event at BNL.

A major laboratory evacuation drill was conducted on October 24 to test the integrated response to a hazardous materials spill at BNL. Categorization, classification, and timely notifications were major objectives of the drill.

SUMMARY OF RESULTS: Training was completed and the drills were conducted. Results were satisfactory and indicated that no further action is required.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T0006 ACTION DUE: 10/27/97

ACTION ITEM: EMERGENCY MANAGEMENT DECISION MAKING - Each DOE facility should have trained, by 10/27/97, all key emergency management personnel on emergency management decision making that emphasizes conservative judgments about facility conditions and personnel exposure in the absence of confirmed data.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 10/22/97 **DAYS OVERDUE:**

ACTION DESCRIPTION: All personnel involved in the process of making decisions or providing input into the decision making process regarding classification were invited to attend the EMERGENCY MANAGEMENT DECISION MAKING training program. A video tape of the presentation was made and is made available to those individuals who could not attend.

Personnel who attended included Crisis Managers, Laboratory Emergency Supervisors, Radiological and Toxic Emergency Coordinators, Incident Commanders, Emergency Planning Advisors, and DOE Brookhaven Group personnel.

SUMMARY OF RESULTS: Training was offered and attended as indicated above.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T0008 ACTION DUE: 10/12/97

ACTION ITEM: PROTECTIVE EQUIPMENT AND STAFFING - Each DOE facility should have confirmed, by 10/12/97, that critical personnel protective equipment, equipment for field monitoring of chemical and radiological hazards, and a sufficient number of qualified personnel are available at all times to respond to emergencies and conduct post accident.

STATUS OF ACTION: Open

DATE OF COMPLETION: DAYS OVERDUE:

ACTION DESCRIPTION: BNL has the necessary field monitoring equipment and personnel protective equipment for chemical and radiological hazards. BNL is the home of Region I's RAP team and as such has available to it the entire spectrum of radiological monitoring and assessment capabilities. There is also a completely equipped mobile laboratory for radiological emergencies.

For chemical emergencies, BNL Fire Rescue Group maintain a 24 hour a day presence and all fire fighters are Technician Level qualified, and all Fire/Rescue Officers i.e., Chief, Deputy Chief, Captains and Lieutenants are Incident Commander qualified. BNL has a fully equipped HazMat trailer which can respond to any site wide, or off site hazardous materials emergency. The only onsite hazard which can generate offsite consequence is chlorine gas, and BNL maintains Chlorine-A and -B kits, and can respond in Level-A protective equipment.

BNL has obtained a local meteorological station for its incident command vehicle, and has installed wind socks on its gaseous chlorine well houses.

SUMMARY OF RESULTS: Following the drill conducted on 10/24 (J98T0007) and a local drill conducted on 10/14/97 for the Waste Management Facility ORR, several issues were identified to improve our radiological and chemical response. These included the installation of a wind sock at the Waste Management Facility and improving the equipment (Plectron radios) used to notify employees of an emergency.

CORRECTIVE ACTION: Install a wind sock at the Waste Management Facility. Investigate an improved, state-of-the-art warning and notification system to replace the current Plectron system

COMMENTS: None

ACTION ID. NO. J98T0010 ACTION DUE: 3/31/98

ACTION ITEM: An exercise must be conducted, by 3/31/98, to demonstrate that procedures provide for notification and protection of workers in a variety of remote locations at the event onset, and for control of their sheltering.

STATUS OF ACTION: Open

DATE OF COMPLETION: DAYS OVERDUE:

ACTION DESCRIPTION: An exercise was conducted on October 24, 1997 (J98T0007). One of the objectives of the drill was to test the ability of emergency management personnel to notify BNL staff of an emergency.

BNL uses two major systems to notify its employees of a lab-wide event. The first is a siren system which has the capability of two tones; one for assembly and the second for evacuation. The second system is a tone alert radio network (Plectrons) over which emergency announcements are made.

Local emergency plans for departments and divisions should have the provision for sheltering in place.

SUMMARY OF RESULTS: a) The siren system operates satisfactorily but may not be heard in all remote locations of the site.

b) The Plectron system is an older system and does not reflect the latest technology.

c) Not all local emergency plans contain provisions for sheltering in place procedures.

CORRECTIVE ACTION: a) Assess the capability of the siren system to reach all remote locations of the site and review procedures for ensuring the protection of workers who may be in those areas.

b) Evaluate other voice notification systems.

c) Review all local emergency plans and ensure that they contain provisions for sheltering in place.

COMMENTS: None

ACTION ID. NO. J98T0012 ACTION DUE: 11/26/97

ACTION ITEM: HAZARDS INFORMATION - Each DOE facility shall review and/or develop procedures, by 11/26/97 (with local medical facilities participating in the review and development), to provide local medical facilities with available information on chemical and radiological hazards, as well as timely qualitative and quantitative exposure information for individuals in the event of an accident.

STATUS OF ACTION: Open

DATE OF COMPLETION: **DAYS OVERDUE:**

ACTION DESCRIPTION: BNL has provided information related to its Hazards Assessment and emergency plan as well as the required EPA SARA reports to Suffolk County.

During an emergency, personnel within the emergency response organization are responsible to conducting exposure assessment and reporting these results to emergency management personnel.

SUMMARY OF RESULTS: BNL does not currently provide hazard information to local medical facilities, and there is no procedural method in place of communicating exposure assessment information to medical facilities.

CORRECTIVE ACTION: BNL will review its policy of providing hazards information to the medical community (Currently, the BNL Hazards Assessment is classified as "Official Use Only").

BNL will also review its procedures for communicating exposure information and revise them as necessary.

COMMENTS: None

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REFERENCE: Tara O'Toole Letter dated October 10, 1997

The above referenced letter asked that each DOE facility (1) review the major process issues of accident investigation identified in the Lessons Learned Report, (2) review accident investigation processes used by the facility, and (3) identify and implement appropriate corrective actions to preclude a recurrence of the process issues which arose out of the Hanford Investigation. This letter is in response to the three above-mentioned areas of concern.

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B. Personnel selected for the Accident Investigation Board were not all DOE personnel who have the training and experience specified in DOE Order 225.1

Within BNL's Safety and Environmental Protection (S&EP) Division is the Safety Engineering Group. This group has one individual who has served as an advisor to DOE Type A and Type B accident investigations. Another individual has taken the AI training sponsored by the Office of the Assistant Secretary for Oversight in 1996, both for board members and points of contact. In addition, the division has approximately eight individuals who are MORT Accident Investigation trained. BNL has undertaken a project to train its supervisory personnel in Type C accident investigation. To date, a total of 161 people has been trained.

The function of the BNL accident investigators is to conduct a preliminary evaluation of the situation, make a determination of the seriousness of the event, assist in the collection and preservation of evidence, provide support for the DOE team, and preserve the scene until DOE personnel arrive. BNL also supplies a professional photographer for the above.

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Upon initial notification of any emergency, both the Fire/Rescue (F/R) Group and the Police Group at BNL will respond. BNL utilizes the Incident Command System for emergency response. The Incident Commander (IC) will be either the ranking F/R responder, i.e., Chief, Deputy Chief, or Captain, or the ranking Police Group responder. The F/R Group will treat any injuries within their capabilities and call for outside medical assistance as necessary. The Police Group will also respond to the scene and determine if it is a possible crime scene. They will secure the scene, limit access, maintain a log-in/log-out of responders, and maintain integrity of the scene until it is released. If the event involves an accident/incident involving violence, motor vehicle accidents, on site fatalities and severe multiple injuries, the Police Group will assume the role of IC until released to another authority.

The Safety Engineering Group carries an emergency pager and can be reached at any time. If summoned, a member of this group will respond to the scene of the incident, assist with appropriate immediate corrective actions, assist with the investigation, and take control of the scene once it is ready for release by the Fire Rescue Group or the Police Group. An AI readiness response kit is maintained by the BNL Safety Engineering Group.

2. Review accident investigation process used

BNL is in the process of revising it ES&H Standard for Occupational Injury and Accident Investigation. This standard addresses those issues raised by the above referenced letter.

3. Identify and implement appropriate corrective actions to preclude a recurrence of the process issues which arose out of the Hanford Investigation
BNL has reviewed the processes it uses for emergency response and accident investigation and has determined that its response is appropriate and no further corrective actions are required.

Should you have any questions, please contact Steve Hoey at extension 7936 or Ken Krasner at extension 2563.

Sincerely,

William E. Gunther
Interim Associate Director

WEG/KK/ls

cc: W. R. Casey
S. Hoey
K. Krasner
F. Marotta
O. White

EP7020.97

K Kramer

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Subject: BNL Chemical Vulnerability and Emergency Response

Reference: 1. DOE Response to the May 14, 1997 Explosion at Hanford's Plutonium Facility, dated August 4, 1997

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Dear Mr. Helms:

Attached is the BNL response to the referenced memoranda. This response was prepared by members of our staff to address the Secretary of Energy's concerns regarding vulnerabilities that occurred in the Hanford explosion as they relate specifically to Brookhaven National Laboratory.

Most of the emergency response actions that DOE is requiring are already part of Brookhaven's emergency response posture [as noted in BNL's 1997 *Emergency Readiness Assurance Plan* (attached)]. Many of the chemical vulnerabilities issues identified in the reference memos have been addressed in recent activities at Brookhaven or have been captured in our Management System Improvement Plan. It is our conclusion that there is only one chemical (chlorine) or radiological hazards present at Brookhaven in quantities that are capable of creating a situation that would result in a general emergency condition. This has been established in the 1996 Brookhaven National Laboratory Hazard Assessment, on which our emergency response program is based.

A presentation in 1996 was made to local regulators on the chlorine hazard and they were satisfied with BNL's response. Since we have no materials on-site other than chlorine that can cause a General Emergency, additional comments from state and local regulators were not solicited. However, we have been working closely with the local fire departments so they are

aware of the hazards on-site and our capabilities to notify them of an ongoing incident. In addition, the Fire Rescue Group communicates routinely with other emergency responders as part of our mutual aid agreement.

If you have any questions, please contact Ken Krasner at ext. 2563.

Sincerely,

William E. Gunther
Interim Associate Director

WEG/OW:av
Attachments

DETAILED NARRATIVE OF ACTIONS TAKEN
IN RESPONSE

EMERGENCY RESPONSE

FACILITY: Brookhaven National Laboratory

RESPONSIBLE INDIVIDUAL: DOE

CONTRACTOR

ACTION ID. NO. J98T0002 ACTION DUE: 9/27/97

ACTION ITEM: Review criteria (e.g., emergency action levels) used to determine emergency and significant event recognition and categorize to ensure that all reasonable event indicators are adequately covered by procedures and that procedures reflect an expeditious process.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 9/97 DAYS OVERDUE:

ACTION DESCRIPTION: The BNL Emergency Plan was revised and issued in June, 1997 following the completion of the BNL Hazards Assessment. EALs were developed based on the results of the Hazards Assessment. Procedures were revised and issued to include the results of the Hazards Assessment, the emergency plan, and other requirements of DOE Order 151.1, i.e. incorporation of the Operational Emergency category which is not further classified (Base Operational Emergency).

A review of the EALs and procedures indicated that they are adequate to categorize and classify events at BNL.

SUMMARY OF RESULTS: The review which was conducted indicated that no further action was required.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T0003 ACTION DUE: 9/27/97

ACTION ITEM:	Review training procedures for personnel responsible for event categorization, notification, or reporting, to ensure that these personnel fully understand the Departmental emphasis on timely event classification and notification.
STATUS OF ACTION:	Complete
DATE OF COMPLETION:	9/22-24/97 DAYS OVERDUE:
ACTION DESCRIPTION:	The training program for emergency management personnel was revised concurrent with the revision to the emergency plan. Study guides were developed to emphasize the changes required by DOE O 151.1. A review of the training program indicated that timely event notifications were included as part of the lesson plan.
SUMMARY OF RESULTS:	A review was conducted and indicated that no further action is required.
CORRECTIVE ACTION:	None
COMMENTS:	None

ACTION ID. NO. J98T0004 ACTION DUE: 9/27/97

ACTION ITEM: Conduct "refresher" training and drills for personnel responsible for event categorization, notification, or reporting, to ensure that these personnel fully understand the Departmental emphasis on timely event classification and notification.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 8/26, 9/1, 9/12, 10/24 DAYS OVERDUE:

ACTION DESCRIPTION: Following the revision to the emergency management training program (J98T0003), a series of Notification, Mobilization and Activation drills were conducted. These drills concentrated on the procedures to fully notify and mobilize emergency response forces, and notify off site agencies of an event at BNL.

A major laboratory evacuation drill was conducted on October 24 to test the integrated response to a hazardous materials spill at BNL. Categorization, classification, and timely notifications were major objectives of the drill.

SUMMARY OF RESULTS: Training was completed and the drills were conducted. Results were satisfactory and indicated that no further action is required.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T0006 ACTION DUE: 10/27/97

ACTION ITEM: EMERGENCY MANAGEMENT DECISION MAKING - Each DOE facility should have trained, by 10/27/97, all key emergency management personnel on emergency management decision making that emphasizes conservative judgments about facility conditions and personnel exposure in the absence of confirmed data.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 10/22/97 **DAYS OVERDUE:**

ACTION DESCRIPTION: All personnel involved in the process of making decisions or providing input into the decision making process regarding classification were invited to attend the EMERGENCY MANAGEMENT DECISION MAKING training program. A video tape of the presentation was made and is made available to those individuals who could not attend.

Personnel who attended included Crisis Managers, Laboratory Emergency Supervisors, Radiological and Toxic Emergency Coordinators, Incident Commanders, Emergency Planning Advisors, and DOE Brookhaven Group personnel.

SUMMARY OF RESULTS: Training was offered and attended as indicated above.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T0008 ACTION DUE: 10/12/97

ACTION ITEM: PROTECTIVE EQUIPMENT AND STAFFING - Each DOE facility should have confirmed, by 10/12/97, that critical personnel protective equipment, equipment for field monitoring of chemical and radiological hazards, and a sufficient number of qualified personnel are available at all times to respond to emergencies and conduct post accident.

STATUS OF ACTION: Open

DATE OF COMPLETION: DAYS OVERDUE:

ACTION DESCRIPTION: BNL has the necessary field monitoring equipment and personnel protective equipment for chemical and radiological hazards. BNL is the home of Region I's RAP team and as such has available to it the entire spectrum of radiological monitoring and assessment capabilities. There is also a completely equipped mobile laboratory for radiological emergencies.

For chemical emergencies, BNL Fire Rescue Group maintain a 24 hour a day presence and all fire fighters are Technician Level qualified, and all Fire/Rescue Officers i.e., Chief, Deputy Chief, Captains and Lieutenants are Incident Commander qualified. BNL has a fully equipped HazMat trailer which can respond to any site wide, or off site hazardous materials emergency. The only onsite hazard which can generate offsite consequence is chlorine gas, and BNL maintains Chlorine-A and -B kits, and can respond in Level-A protective equipment.

BNL has obtained a local meteorological station for its incident command vehicle, and has installed wind socks on its gaseous chlorine well houses.

SUMMARY OF RESULTS: Following the drill conducted on 10/24 (J98T0007) and a local drill conducted on 10/14/97 for the Waste Management Facility ORR, several issues were identified to improve our radiological and chemical response. These included the installation of a wind sock at the Waste Management Facility and improving the equipment (Plectron radios) used to notify employees of an emergency.

CORRECTIVE ACTION: Install a wind sock at the Waste Management Facility. Investigate an improved, state-of-the-art warning and notification system to replace the current Plectron system

COMMENTS: None

ACTION ID. NO. J98T0010 ACTION DUE: 3/31/98

ACTION ITEM: An exercise must be conducted, by 3/31/98, to demonstrate that procedures provide for notification and protection of workers in a variety of remote locations at the event onset, and for control of their sheltering.

STATUS OF ACTION: Open

DATE OF COMPLETION: DAYS OVERDUE:

ACTION DESCRIPTION: An exercise was conducted on October 24, 1997 (J98T0007). One of the objectives of the drill was to test the ability of emergency management personnel to notify BNL staff of an emergency.

BNL uses two major systems to notify its employees of a lab-wide event. The first is a siren system which has the capability of two tones; one for assembly and the second for evacuation. The second system is a tone alert radio network (Plectrons) over which emergency announcements are made.

Local emergency plans for departments and divisions should have the provision for sheltering in place.

SUMMARY OF RESULTS: a) The siren system operates satisfactorily but may not be heard in all remote locations of the site.

b) The Plectron system is an older system and does not reflect the latest technology.

c) Not all local emergency plans contain provisions for sheltering in place procedures.

CORRECTIVE ACTION: a) Assess the capability of the siren system to reach all remote locations of the site and review procedures for ensuring the protection of workers who may be in those areas.

b) Evaluate other voice notification systems.

c) Review all local emergency plans and ensure that they contain provisions for sheltering in place.

COMMENTS: None

ACTION ID. NO. J98T0012 ACTION DUE: 11/26/97

ACTION ITEM: HAZARDS INFORMATION - Each DOE facility shall review and/or develop procedures, by 11/26/97 (with local medical facilities participating in the review and development), to provide local medical facilities with available information on chemical and radiological hazards, as well as timely qualitative and quantitative exposure information for individuals in the event of an accident.

STATUS OF ACTION: Open

DATE OF COMPLETION: **DAYS OVERDUE:**

ACTION DESCRIPTION: BNL has provided information related to its Hazards Assessment and emergency plan as well as the required EPA SARA reports to Suffolk County.

During an emergency, personnel within the emergency response organization are responsible to conducting exposure assessment and reporting these results to emergency management personnel.

SUMMARY OF RESULTS: BNL does not currently provide hazard information to local medical facilities, and there is no procedural method in place of communicating exposure assessment information to medical facilities.

CORRECTIVE ACTION: BNL will review its policy of providing hazards information to the medical community (Currently, the BNL Hazards Assessment is classified as "Official Use Only").

BNL will also review its procedures for communicating exposure information and revise them as necessary.

COMMENTS: None

ACTION ID. NO. J98T00014 ACTION DUE:

ACTION ITEM: Scrutinize the use or storage of any chemicals that have the potential for explosion, fire, or significant toxic release, and promptly dispose of unneeded chemicals in accordance with safety requirements and environmental

STATUS OF ACTION: Closed

DATE OF COMPLETION: DAYS OVERDUE:

ACTION DESCRIPTION: BNL has been performing a number of reviews which identify potential vulnerabilities from chemical and radiological hazards. These activities serve to both scrutinize the use of these material and to reduce the hazard by disposal and/or reduction of materials. The combination of the following activities provides the level of detail necessary to ensure that BNL has adequately addressed this action:
- CMS Baseline Inventory -- Completion Date: 03/31/98
- SARA III Report dated 07/97
- Clean Air Act Emission Source Inventory -- on going
- BNL Hazard Assessment -- Completion Date 10/97
- Chemical Storage Inventory for SC Article 12 Compliance -- Completion Date: 11/97
- BNL Facility Reviews

SUMMARY OF RESULTS: A number of potential environmental vulnerabilities have been identified and most have been addressed. However, no vulnerabilities were identified that could result in an incident similar to the Hanford explosion.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T00016 ACTION DUE:

ACTION ITEM: Reassess known vulnerabilities (chemical and radiological) at facilities that have been shut down, are in standby, are being deactivated, or have otherwise changed their conventional mode of operation in the last several years, and report on the status to STS by 11/15/97. Facility operators must evaluate their facilities and operations for new vulnerabilities on a continuing basis.

STATUS OF ACTION: Completed

DATE OF COMPLETION: DAYS OVERDUE:

ACTION DESCRIPTION: Recently identified environmental vulnerabilities at BNL have resulted in a comprehensive assessment of facilities which used significant quantities of chemicals and radioactive material. In order to identify any past or current activities that have the potential to degrade the environment, program managers were asked to review and document the BNL operating history of each facility. All facilities were categorized as either a Priority One or a Priority Two facility, based primarily on previous uses and age of the facility. The review included both current and previously demolished structures. Current program managers of facilities were responsible for the review. The process included reviewing facility design and layout drawings, inspection reports, safety analysis reports, the annual Site Environmental Reports, and other pertinent documents, such as operating reports and log books. Current and former employees with knowledge of the operations or practices over the operating history were also interviewed. Extensive walk-downs and examinations of the interior as well as the exterior of the facility were also performed.

SUMMARY OF RESULTS:

CORRECTIVE ACTION: None

COMMENTS:

ACTION ID. NO. J98T00018 ACTION DUE:

ACTION ITEM: Assess their site lessons learned and Occurrence Reporting programs to assure that 1) outgoing information is well characterized and properly summarized and 2) incoming information is thoroughly evaluated, properly disseminated, appropriately implemented, and tracked through formal management systems

STATUS OF ACTION: Open

DATE OF COMPLETION: **DAYS OVERDUE:**

ACTION DESCRIPTION: 1) BNL believes that, for the most part, "outgoing information is well characterized and properly summarized." Existing review mechanisms, both internal to BNL and through the Department of Energy, review Occurrence Reports for these attributes. 2) While informal programs exist for "incoming information", there are weaknesses in evaluation, dissemination, implementation and tracking through formal management systems. Improvements in the site lessons learned program is incorporated into several MSIP WBS Elements, including 1.3.1 ESH Assessments, and 1.3.2 Commitment and Corrective Action Tracking System (CCATS), and 1.3.10 Environmental Management system.

SUMMARY OF RESULTS:

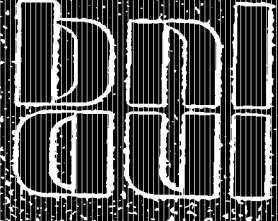
CORRECTIVE ACTION: The actions of this item are described in the BNL Management System Improvement Project Work Breakdown Structure Dictionary. At the upper level, these descriptions are:

WBS 1.3.1 ESH Assessments - This item describes the process by which the current assessment activities will be reviewed, improved, documented, and implements. The activities to be executed include a review of existing internal programs for self-assessment with formal documentation of changes and improvements to the self-assessment program, mentoring by DOE-EH in self-assessment, interfacing the results of the assessment process with information systems, and improvements to management ESH inspections.

WBS 1.3.2 Commitment and Corrective Action Tracking System (CCATS) - This element describes the development, piloting and implementation of a tracking and record keeping system that will assist management in tracking, trending, root cause analysis, provide organizational and individual commitment and corrective action status as well as ESH project backlog. The deliverables include: the system, a report on the system and system performance from the pilot program, data requirements, access guidelines, roles and responsibilities for maintenance and upkeep of the system, training materials for users, interfaces to other key ESH Management Information System and planning programs.

EMERGENCY READINESS ASSURANCE PLAN

For Fiscal Year 1997



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WBS 1.3.10 Environmental Management System - This work element encompasses the activities that the Laboratory will undertake to improve and integrate its environmental management systems. The activities included in this element will address all environmental media, processes which result in release to the environment and the control, monitoring and potential elimination of environmental releases. The systems currently used to monitor, report and analyze environmental impacts and plan future activities will be integrated. This element includes the results and actions to be taken in response to recent assessments of BNL such as the DOE-EH Independent Safety Management Evaluation, the EPA Multimedia reviews, and BNL Facility Reviews, bench marking of other DOE and similar industrial facility systems. It also includes a detailed review of existing systems and programs for monitoring, reporting and planning for environmental activities. Activities in this element must interface with the expectation and core values of the Laboratory (WBS 1.1.1.1 and WBS 1.1.1.2), the Performance Measures (WBS 1.3.5) the ESH standards/requirements (WBS 1.3.7 and WBS 1.3.8), the Prioritization element (WBS 1.3.3), the ESH Budget element (WBS 1.3.4), and the Key ESH Management Information Systems (WBA 1.3.8). The deliverables include a comprehensive report of systems in place and improvements needed to meet standards and requirements as well as the expectations of the Laboratory and the stakeholders.

COMMENTS:

ACTION ID. NO. J98T00017 ACTION DUE:

ACTION ITEM: Assess the technical competence of their staffs to recognize the full range of hazards presented by the materials in their facilities, act on results, and implement training programs where needed.

STATUS OF ACTION: Open

DATE OF COMPLETION: DAYS OVERDUE:

ACTION DESCRIPTION: BNL recently implemented mandatory ESH training for supervisors to improve site-wide competence to recognize, evaluate, and provide appropriate corrective action in their work place. Job Safety Analysis is one of the mandatory modules. The other mandatory modules are Accident Investigating, Safety & the Supervisor, and Injury/Illness Reporting & Recordkeeping System. Additional ESH Training modules are under development and will be available shortly. The MSIP also has a training initiative which addresses the ESH competence of the staff. The ISM and Work Smart process will involve cross sections of employee, supervisor, and ESH professionals to define work, identify hazards, identify control for these hazards, work within the established controls, and assess the work for continuous improvement. These activities will fully assess the competence of BNL staff to recognize work place hazards.

SUMMARY OF RESULTS:

CORRECTIVE ACTION: BNL will continue its current initiatives to improve the technical competence of its staff under the MSIP.

COMMENTS:

ACTION ID. NO. J98T00015 ACTION DUE:

ACTION ITEM: CH line managers and facilities shall develop an approval process to assure the disposal or safe and environmentally compliant storage and handling of such chemicals that are retained.

STATUS OF ACTION: Open

DATE OF COMPLETION: DAYS OVERDUE:

ACTION DESCRIPTION: BNL has recently completed a review, with Suffolk County Department of Health (SCDHS), of chemical storage facilities for compliance with Article 12; SCFHS' conservative chemical storage requirement. BNL is in the process of registering such facilities with SCDHS. Furthermore, SCDHS inspectors have participated in the recently completed Facility Review and have observed and concurred with the corrective actions.

BNL's hazardous management program is a comprehensive program for disposal of chemicals which includes the designation of satellite and 90 day accumulation areas of waste, the training of waste generators, the pickup and disposal of waste by trained staff of the SEP HWMF.

BNL has several initiatives in the MSIP to review its work planning and process assessments to evaluate the process for assessing planned disposal and/or storage of chemicals. The current EPA multi-media, Phase II involves a detail review of operational and experimental processes which will result in waste streams . A review of these initiatives under MSIP will be performed to determine if the current approval processes are adequately addressed.

SUMMARY OF RESULTS:

CORRECTIVE ACTION: Complete ongoing initiatives under MSIP

COMMENTS:

ACTION ID. NO. J98T0013 ACTION DUE: 3/31/98

ACTION ITEM:	An exercise must be conducted, by 3/31/98, to demonstrate the ability of contractors to provide local medical facilities with adequate information for a variety of potential accidents to effectively diagnose and treat injured, exposed, or potentially exposed workers.
STATUS OF ACTION:	Open
DATE OF COMPLETION:	DAYS OVERDUE:
ACTION DESCRIPTION:	BNL regularly trains and conduct drills with local fire departments as well as Stony Brook University Hospital. BNL maintains an MOU with Stony Brook University Hospital for treatment of contaminated injured individuals, and the Director of the Occupational Medicine Clinic is on staff at this facility.
SUMMARY OF RESULTS:	BNL does not have an exercise scheduled whereby we are required to provide local medical facilities with adequate information for a variety of potential accidents to effectively diagnose and treat injured, exposed, or potentially exposed workers.
CORRECTIVE ACTION:	BNL will work with the Director of the Occupational Medicine Clinic to conduct the necessary training and hold an exercise.
COMMENTS:	None

ACTION ID. NO. J98T0011 ACTION DUE: 3/31/98

ACTION ITEM: Security, medical, and other responders must be trained, by 3/31/98, to recognize the health impacts of potential accidents, including the effects of exposure to chemicals and the potential for post-traumatic effects associated with accidents.

STATUS OF ACTION: Open

DATE OF COMPLETION: **DAYS OVERDUE:**

ACTION DESCRIPTION: BNL has 24 hour EMT-D coverage through its Fire/Rescue Group. During normal working hours, BNL's Occupational Medicine Clinic is staffed by doctors and nurses.

BNL has a psychologist on staff to deal with post-traumatic stress and is available for counseling.

SUMMARY OF RESULTS: a) BNL's Safeguards and Security personnel (police) are not EMT qualified.

b) There is no training program at BNL for emergency response personnel to recognize symptoms of exposure to chemicals or for dealing with post-traumatic stress.

CORRECTIVE ACTION: a) BNL will investigate the feasibility and assess the need to have security personnel trained as EMTs.

b) BNL will investigate the availability of training programs for recognition of symptoms of chemical exposure and assess its value.

COMMENTS: None

ACTION ID. NO. J98T0009 ACTION DUE: 11/26/97

ACTION ITEM: PROTECTIVE TREATMENT OF PERSONNEL - Each DOE facility shall review and confirm, by 11/26/97 (with local medical authorities and workers participating in the review), that emergency policies and procedures provide for timely medical attention to injured or potentially exposed personnel and provide for the care and continued monitoring of affected personnel for an appropriate period after accidents.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 11/7/97 DAYS OVERDUE:

ACTION DESCRIPTION: BNL maintains a 24 hour ambulance and rescue vehicle. All fire fighters are EMT-D qualified. There are several hospitals in the area including a trauma-1 facility. The Director of the BNL Occupational Medicine Clinic is also on staff at Stony Brook University Hospital, which maintains an MOU with BNL to care for any contaminated injured personnel.

BNL is part of the Suffolk County Mutual Aid organization. Surrounding BNL there are six volunteer fire departments and four community ambulance companies which can respond within 30 minutes.

SUMMARY OF RESULTS: The review was conducted and no further action is required.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T0007 ACTION DUE: 3/31/98

ACTION ITEM: An exercise must be conducted, by 3/31/98, to demonstrate proficiency.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 10/24/97 DAYS OVERDUE:

ACTION DESCRIPTION: An exercise was conducted on October 24, 1997. This exercise involved a simulated leak of chlorine gas. The scenario required the declarations of emergencies up to an General Emergency. A site wide evacuation was ordered and carried out, and protective action recommendations were formulated for citizens outside the site boundary. Notifications were made to outside organizations as required by procedure.

SUMMARY OF RESULTS: The results of the exercise were satisfactory. Several areas requiring improvement were discovered but not involving the classification or notification process.

CORRECTIVE ACTION: None

COMMENTS: None

ACTION ID. NO. J98T0005 ACTION DUE: 9/27/97

ACTION ITEM: Solicit the comments of other Federal, state, local, and tribal agencies regarding timely notification of all events of concern.

STATUS OF ACTION: Complete

DATE OF COMPLETION: 9/24 DAYS OVERDUE:

ACTION DESCRIPTION: BNL conducts monthly notification drills with offsite agencies, i.e., New York State, Suffolk County, DOE HQ, and DOE Brookhaven Group. Emphasis is placed on informing these agencies within 15 minutes of the time of declaration of an Operational Emergency. All drills conducted to date have had satisfactory results with notifications being made well within the 15 minute criteria.

New York State and Suffolk County have indicated their satisfaction with the method of notifying them and have recommended changes to the improve the process which have been incorporated into the procedure

SUMMARY OF RESULTS: Comments received to date have indicated satisfaction and no further action is required.

CORRECTIVE ACTION: None

COMMENTS: None